



Tanta University



Faculty of Engineering

**Electrical Power and Machines
Engineering Department**

Electric Circuit Lab Experiments

**1st Year of Mechanical Engineering
2nd Term**

Experiment (3)

Kirchhoff's Current Law

Kirchhoff's Current Law

- K.C.L. states that the algebraic sum of currents at any node in electric circuit is zero.

$$\sum I = 0$$

OR:

- The sum of current entering to any node in electric circuit is equal to the sum of current leaving the node.

$$\sum I_{\text{in}} = \sum I_{\text{out}}$$

Objective of experiment

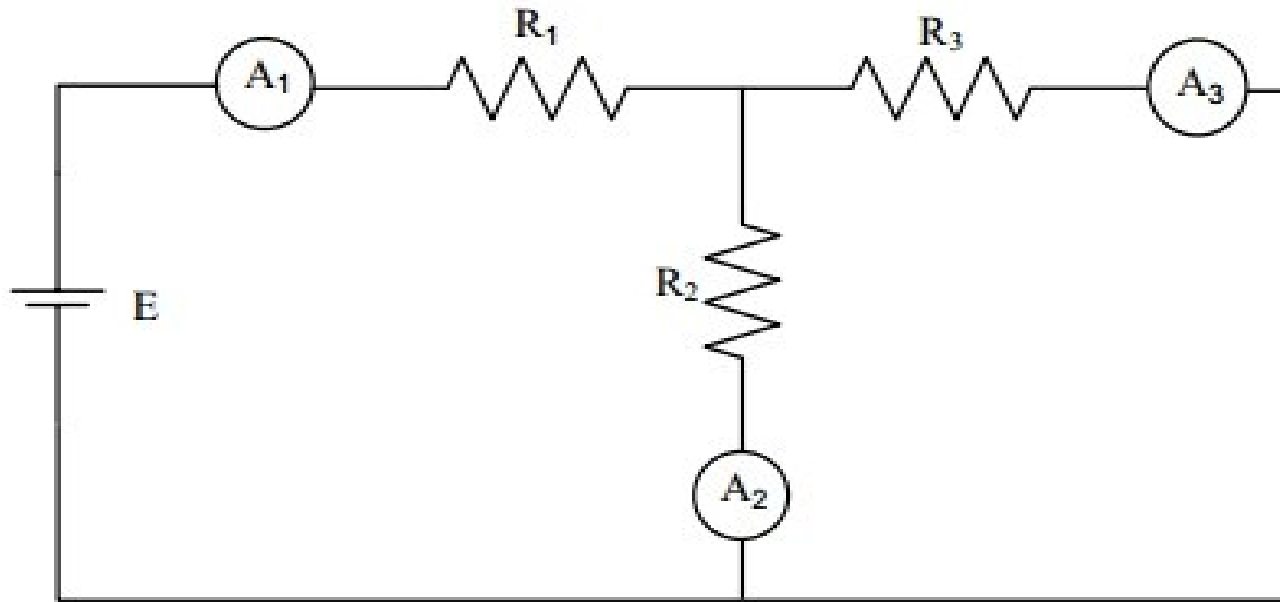
- To verify experimentally K.C.L. for a simplified electrical circuit.

Experiment Requirements

- 3 Resistors.
- D.C. Supply.
- 3 D.C. Ammeters.



Experiment connection



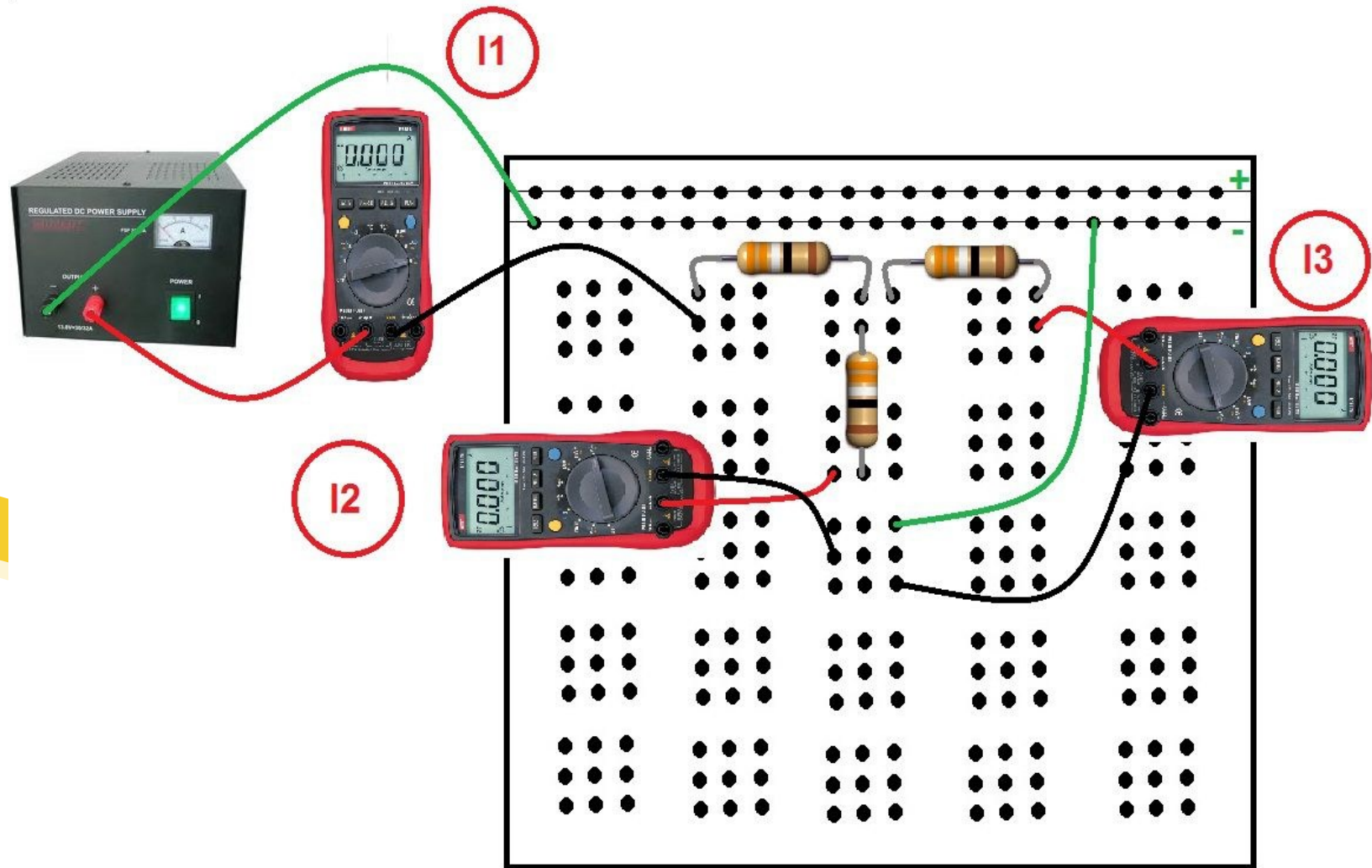
It is supposed to note that:

$$I_1 = I_2 + I_3$$

OR

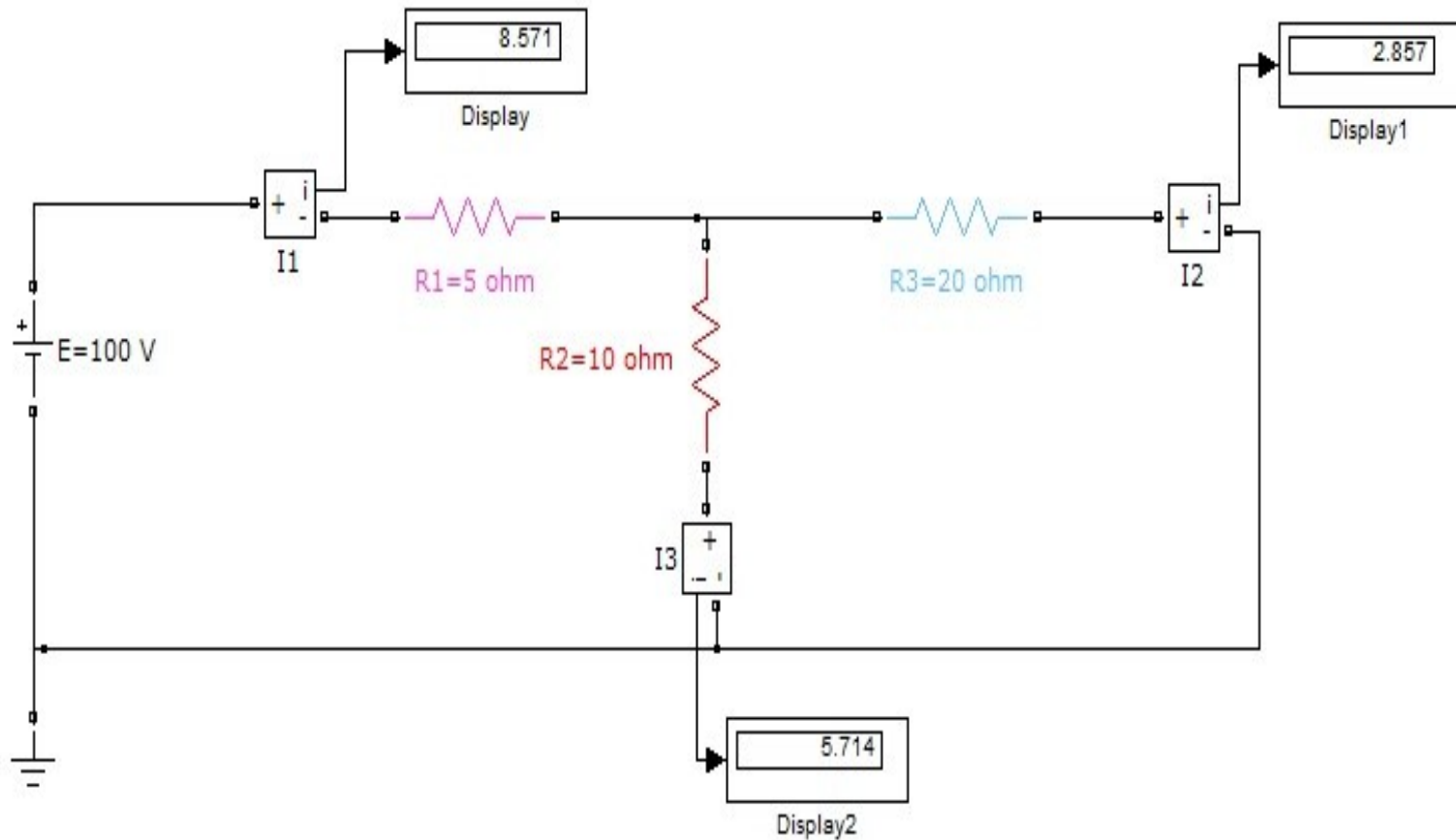
$$I_1 - I_2 - I_3 = 0$$

Experiment connection



Simulation results

At Supply voltage = 100 V



Experiment results

By changing the D.C. Source value, then read the circuit currents and record it.

I1	I2	I3